IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No	:	10/617,376
Applicant	:	Flowers et al.
Filed	:	July 11, 2003
Title	:	Fluorine Gas Treatment of Washing Machine Parts
TC/A.U.	:	1791
Examiner	:	Wollschlager, Jeffrey
Docket No.	:	FLO002-091
Customer No.:		27238

Commissioner for Patents
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REPLY BRIEF

Sir:

This Reply Brief is filed in response to the Examiner's Answer dated November 15, 2007, issued in connection with the above-identified U.S. patent application.

Remarks/Arguments begin on page 2 of this paper.

REMARKS/ARGUMENTS

With all due respect, it is submitted that the Examiner has mischaracterized the teachings of McGinniss et al., which was developed by the Applicant in a preliminary patentability search conducted on this invention and cited to the Examiner at the time of filing the present application. In this Reply Brief, Applicant has provided counter-arguments for all the main points raised by the Examiner and provided simplified arguments of various clear differences between the present invention and the teachings of McGinniss et al. and Seip et al.

1. Main Counter Arguments To Issues Raised By Examiner In The Answer

(10) Response to arguments

Claims 1-6 and 8

In responding to Applicant's prior arguments, on pages 5-7 of the Answer, the Examiner has set forth the proposition that the Examiner has used the Seip et al. reference to show that it would have been prima facie obvious to one having ordinary skill in the art to take the generic stain resistant polypropylene polymeric substrate taught by McGinniss et al. and to have used it as a stain resistant polypropylene polymeric part in a dishwasher and washing machine as suggested by Seip et al. The Examiner further argues, since McGinniss et al., discloses that the proportion of oxygen providing compounds present during the fluorination treatment is restricted to an amount such that substantially no oxidation of the polymeric surface occurs, McGinniss et al. renders obvious to use a certain amount of oxygen during a fluorination process. See page 7 of the Office Action.

Essentially, the Examiner is improperly selecting only certain parts of the disclosure of the two applied references as opposed to considering the references as a whole. Instead of only relying on paragraphs 3-12 of Seip et al., as the Examiner does, the entire reference should be considered. Seip et al. actually teaches making a molded household article from a composition containing an additive package to enhance stain

resistance. The additive package must have a phenolic antioxidant, a phosphate, and an acid scavenger incorporated into a polyolefin. No where in Seip et al. is there any discussion or reference to providing a new surface treatment for enhancing stain resistance, let alone any discussion or reference to fluorine. As for McGinniss et al., McGinniss et al. is related to treating fibers for clothing, plastic storage bags for blood and safety glasses by surface fluorination (see column 1, lines 25-29). This is in complete contrast to the present invention which is limited to plastic washing machine components.

Even if one were to, as the Examiner suggests, take a generic stain resistance polypropylene polymeric substrate taught by McGinniss et al. and use it as a stain resistant polypropylene polymeric part in a dishwasher, presumably **one would pick the polypropylene substrate that is actually stain resistant as opposed to one that is not.** See, for example, Table 5, a portion of which is reproduced below. This table shows five different polypropylene substrates: a control which is not treated, an inventive formulation I1 labeled no air/no wash, an inventive formulation I2 labeled no air with a wash, a Dixon 1-A formulation labeled air/no wash and a Dixon 2-B formulation labeled air with wash. Dixon refers to U.S. Patent No. 4,020,223. When looking at Table 5, under the column "stain resistant", the two inventive substrates I1, I2 have what is referred to as "good" stain resistance and the other two substrates D1-A, D1-B have what is referred to as "poor" stain resistance. In commenting on the table of McGinniss et al., note "Since no oxygen uptake occurs by the inventive process, the inventive fluorinate surface is less sensitive to water. The stain resistance test bears witness to this conclusion."

TABLE 5

Substrate		% O_2	CF_2/ CHF	Con-tact Angle	Stain Resist.	% Haze	Scratch Resist.
Poly-propy-lene	Con-trol	--	--	--	--	9-11	48.3
	I1	6.9	1.10	18	Good	15.3	11.4
	I2	9.2	0.81	15	Good	15.1	16.2
	D1-A	15.4	0.73	20	Poor	12.1	21.4
	D1-B	13.5	0.58	21	Poor	11.8	43.7

Apparently, from the Examiner's discussion, the Examiner is of the position that Seip et al. teaches the need for stain resistance and, thus, it would be obvious to one of ordinary skill in the art to pick a polypropylene substrate which has poor stain resistance rather than one that has good stain resistance. Of course, Applicant respectfully submits that such reasoning is in error. One of ordinary skill in the art, when looking for stain resistance, would pick a substrate that has good stain resistance, not poor stain resistance. In this case, one would pick I1 or I2. The substrate set forth in Table 5 as I1/I2 is formed with no additional air or oxygen. The treatment is with fluorine only. Therefore, this teaches away from the present invention.

The Examiner's statement that some oxygen may be present during a fluorine treatment referring to the abstract; column 2, lines 36-41 and column 4, lines 29-34 is not particularly relevant. Claim 1 requires "introducing a gas mixture containing fluorine and oxygen into the reaction chamber". This is in complete contrast to McGinniss et al. which teaches it is preferably to have no oxygen in what McGinniss et al. calls an inventive no air surface treatment. The prior art, when taken as a whole, does not disclose or render obvious introducing a gas mixture containing fluorine and oxygen into the reaction chamber and thus the rejection should be reversed.

Claims 9-11

The Examiner argues that there is a clear suggestion in Seip et al. to employ plastic parts inside a washing machine and dishwasher and that the specific parts of the washing machine and dishwasher are suggested or at least implied in Seip et al. since the claimed plastic parts are conventional plastic parts found in washing machines and dishwashers. See page 8 of the Answer. However, the Examiner has not provided any substantial evidence showing a dishwasher tub as in claim 9, a dishwasher door liner as in claim 10, or a dishwasher spray arm as in claim 11 being subject to any type of surface treatment. Applicant respectfully submits that it is not proper to rely on "common knowledge" in the art without evidentiary support on the record as principle evidence upon which a rejection is based. See *In re Zurko*, 258 F.3d 1379, 59 USPQ 2nd 1693 (Fed. Cir. 2001). Even if McGinniss et al. and Seip et al. were combined, there is no disclosure of these particular plastic parts being subject to any type of surface treatment and, therefore, this rejection should be reversed.

Claim 13

In the Examiner's response to arguments regarding claim 13, the Examiner is apparently no longer relying on the abstract of McGinniss et al. but rather is now relying on a statement at column 7, lines 36-40. In that section of the patent, McGinniss et al. states that fluorination reactions were carried out in a one or two liter reaction cell under very dilute fluorination conditions at room temperature and at a total pressure of 1 atmosphere or less. Reading on, the typical dilute fluorination for the one liter cell was practiced such that a sample was placed in the cell, the cell was then evacuated and filled with 50% of its volume with nitrogen which is oxygen-free. The cell was then partially pressurized with dilute fluorinated gas to 17% to the cell volume and then additional nitrogen was charged to establish a 1 atmosphere pressure in the cell and the cell held at room temperature for 1-60 minutes. See column 7, lines 36-68. In contrast, the only reasonable interpretation of claim 13 is that it establishes a pressure of approximately 0.1-0.9 atmospheres in the reaction chamber by introducing a gas mixture containing fluorine

and oxygen into the reaction chamber. In other words, the plastic washing component is treated at a pressure of 0.1-0.9 atmospheres. See page 7 of the specification and claim 13. By contrast, McGinniss et al. clearly teaches that the cell is charged to 1 atmosphere during the fluorination reaction process practiced without oxygen. See column 7, line 65 and therefore this rejection should be reversed.

Claims 7 and 12

The Examiner's position regarding Büschges et al. is that, since they teach fluorinating the surface of plastic articles such as polypropylene articles in order to improve barrier properties against the penetration of volatile substances, the teachings of Büschges et al., when combined with McGinniss et al. and Seip et al., render obvious the specific thicknesses of claim 7. However, the Examiner has not addressed the argument as set forth in the Appeal Brief that these three references are not properly combinable as the Büschges et al. reference relates to the prevention of permeation of fuels through plastic tank walls and has absolutely nothing to do with dishwasher parts. Presumably, one is not going to put hydrocarbons, alcohols, ethers and keytones, and the like in a dishwasher as they are mostly poisonous and therefore there is no reason to look to the teaching of Büschges et al. regarding the thickness of a fluorine treatment.

In regard to the temperature range of claim 12, it would appear that the Examiner is now relying much more heavily in McGinniss et al. as opposed to relying on the combination as set forth in the final rejection. The Examiner essentially argues that the McGinniss et al. reference teaches a fluorination process that occurs at room temperature. Applicant respectfully submits that room temperature would be in order of 18-23°C, not 32-70°C as set forth in claim 12. McGinniss et al. specifically teaches room temperature, as pointed out to the Examiner and, therefore, would teach to one of ordinary skill in the art to use room temperature rather than to use any other temperature.

Conclusion

In view of the above remarks, the Examiner is again requested to reconsider the positions taken. In any case, reversal of the rejections presented in this application and allowance of the claims are respectfully requested.

Respectfully submitted,

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